

List of Contents

NUMBER 1/2

R. Kowalczyk
and **U. Foryś**

M. Iovieno and **V. Roma**

V. Sundarapandian

V. Sundarapandian

V. Sundarapandian

J. S. Jung, Y. J. Cho
and **H. Zhou**

M. Delitala

L. Júdez, J. M. de Miguel,
J. Mas and **R. Bru**

C. I. Christov and **J. Pontes**

G. Palazzo, R. Pasquino
and **N. Bellomo**

M. S. Mongiovì

H. A. Donegan and
T. B. M. McMaster

X. Yang

S. Schnell and **P. K. Maini**

Q. Xie, G. Chen
and **E. M. Bollt**

T. Patterson, D. I. Orloff
and **F. Bloom**

A. Yu. Benilov
and **L. N. Ly**

G. R. Liu and **T. Y. Wu**

S. Rajasekaran and
G. A. Vijayalakshmi Pai

1 Qualitative Analysis on the Initial Value Problem to the Logistic Equation with Delay

15 Two-Dimensional Viscous Flow Between Circular Cylinders: Application to Damping Devices for Seismic Isolation

25 Local Observer Design for Nonlinear Systems

37 Observer Design for Discrete-Time Nonlinear Systems

45 Global Observer Design for Nonlinear Systems

55 Iterative Methods with Mixed Errors for Perturbed m -Accretive Operator Equations in Arbitrary Banach Spaces

63 Critical Analysis and Perspectives on Kinetic (Cellular) Theory of Immune Competition

77 Modeling Crop Regional Production Using Positive Mathematical Programming

87 Numerical Scheme for Swift-Hohenberg Equation with Strict Implementation of Lyapunov Functional

101 Temperature Fields in Machining Processes and Heat Transfer Models

111 Thermomechanical Effects in the Flow of a Fluid in Porous Media

119 Formal Aspects of Egress Complexity

129 Positive Solutions for the One-Dimensional p -Laplacian

137 Enzyme Kinetics Far From the Standard Quasi-Steady-State and Equilibrium Approximations

145 Hybrid Chaos Synchronization and Its Application in Information Processing

165 Delamination Buckling and Spalling of Plasma-Sprayed Thermal Barrier Coatings

191 Modelling of Surface Waves Breaking Effects in the Ocean Upper Layer

215 Multipoint Boundary Value Problems by Differential Quadrature Method

229 Recurrent Neural Dynamic Models for Equilibrium and Eigenvalue Problems

NUMBER 3/4

J. A. Martín and O. García 241 Variable Multistep Methods for Delay Differential Equations

M. Shcherbina and B. Tirozzi 259 Generalization and Learning Error for Nonlinear Perceptron

L. Aggoun and L. Benkherouf 273 Filtering of Discrete-Time Systems Hidden in Discrete-Time Random Measures

L. Tadj and C. Tadj 283 Recursive Solution to a Quorum Queueing System

I. Kubiaczyk and S. H. Saker 295 Oscillation and Stability in Nonlinear Delay Differential Equations of Population Dynamics

E. Defez, A. Law, J. Villanueva-Oller and R. J. Villanueva 303 Matrix Newton Interpolation and Progressive 3D Imaging: PC-Based Computation

D. Greenspan 323 Conservative Motion of a Discrete, Dodecahedral Gyroscope

I. G. Rosen, T. Parent, R. Mancera, P. Chen and A. Madhukar 335 Modeling and Simulation of Thermal Chlorine Etching of Gallium Arsenide with Application to Real-Time Feedback Control

A. Giloni and M. Padberg 361 Alternative Methods of Linear Regression

Y. Yavin and C. Frangos 375 Modelling and Control of a Puma-Like Manipulator

I.-S. Kim, K. Kim and S. Park 385 Leray-Schauder Alternatives for Approximable Maps in Topological Vector Spaces

Y. Yavin and C. Frangos 393 Modelling and Control of a Walking Four Link Robot

A. Calsina and O. El idrissi 403 Asymptotic Behaviour of a Semilinear Age-Structured Population Model with a Dynamics for the Resource

M. Liang and M. J. Palakal 429 Airborne Sonar Target Recognition Using Artificial Neural Network

Z. C. Li, H. J. Li, C. Y. Suen, H. Q. Wang and S. Y. Liao 441 Recognition of Handwritten Characters by Parts with Multiple Orientations

NUMBER 5/6 TRAFFIC FLOW—MODELLING AND SIMULATION

N. Bellomo xiii Preface

B. S. Kerner 481 Synchronized Flow as a New Traffic Phase and Related Problems for Traffic Flow Modelling

K. R. Smilowitz and F. C. Daganzo 509 Reproducible Features of Congested Highway Traffic

| | |
|--|--|
| D. Helbing, A. Hennecke, V. Shvetsov and M. Treiber | 517 Micro- and Macro-Simulation of Freeway Traffic |
| A. Marasco | 549 Nonlinear Hydrodynamic Models of Traffic Flow in the Presence of Tollgates |
| P. Nelson | 561 Traveling-Wave Solutions of the Diffusively Corrected Kinematic-Wave Model |
| M. Rascle | 581 An Improved Macroscopic Model of Traffic Flow: Derivation and Links with the Lighthill-Whitham Model |
| M. Günther, A. Klar, T. Materne and R. Wegener | 591 An Explicitly Solvable Kinetic Model for Vehicular Traffic and Associated Macroscopic Equations |
| M. Lo Schiavo | 607 A Personalized Kinetic Model of Traffic Flow |
| A. Sopasakis | 623 Unstable Flow Theory and Modeling |
| V. Astarita | 643 Node and Link Models for Network Traffic Flow Simulation |
| I. Bonzani and R. Porro | 673 Optimization of Traffic Flow Conditions by Minimization of Quadratic Functionals |
| R. M. Colombo | 683 A 2×2 Hyperbolic Traffic Flow Model |
| P. Daniele and A. Maugeri | 689 Variational Inequalities and Discrete and Continuum Models of Network Equilibrium Problems |

NUMBER 7/8

| | |
|--|--|
| B. D'Acunto and M. De Angelis | 709 A Phase-Change Problem for an Extended Heat Conduction Model |
| S. H. Saker and S. Agarwal | 719 Oscillation and Global Attractivity in a Periodic Nicholson's Blowflies Model |
| A. V. Busuioc | 733 The Regularity of Bidimensional Solutions of the Third Grade Fluids Equations |
| Z. Nenadic, B. Ghosh and P. Ulinski | 743 Propagating Waves in Visual Cortex: A Large Scale Model of Turtle Visual Cortex |
| V. N. Dorovsky and S. V. Dorovsky | 751 A Hydrodynamic Model of Water-Oil Layered Systems Containing Gas |
| E. A. Galperin | 759 Balance Space in Airport Construction: Application to the North Sea Island Option for Schiphol Airport |
| M. Bodnar | 765 Norm Conservation for Generalized Kinetic Population Models with Delay |
| M. Durán, J. Ferreira and M. A. Rojas-Medar | 779 Reproductive Weak Solutions of Magneto-Micropolar Fluid Equations in Exterior Domains |

| | |
|--|--|
| Y. Yavin and C. Frangos | 793 Modelling and Control of the Motion of a Disk Rolling on a Sloping Plane |
| J. Izquierdo and P. L. Iglesias | 801 Mathematical Modelling of Hydraulic Transients in Simple Systems |
| M. S. Mongiovì | 813 Nonlinear Nonviscous Hydrodynamical Models for Charge Transport in the Framework of Extended Thermodynamic Methods |
| B. Burchett, A. Peterson and M. Costello | 821 Prediction of Swerving Motion of a Dual-Spin Projectile with Lateral Pulse Jets in Atmospheric Flight |
| I. H. Dimovski, S. L. Kalla and I. Ali | 835 Operational Calculus Approach to PDE Arising in QR-Regularisation of Ill-Posed Problems |
| H. K. Lo and W. Y. Szeto | 849 A Cell-Based Dynamic Traffic Assignment Model: Formulation and Properties |
| J. M. Tarela, K. Basterretxea, I. del Campo, M. V. Martínez and E. Alonso | 867 Optimised PWL Recursive Approximation and its Application to Neuro-Fuzzy Systems |
| A. Noureddine, A. Eskandarian and K. Digges | 885 Computer Modeling and Validation of a Hybrid III Dummy for Crashworthiness Simulation |
| A. V. Mernone, J. N. Mazumdar and S. K. Lucas | 895 A Mathematical Study of Peristaltic Transport of a Casson Fluid |
| M. M. Fadiloglu and S. Yeralan | 913 Models of Production Lines as Quasi-Birth-Death Processes |

NUMBER 9/10

| | |
|--|---|
| Y. Yavin | 931 Modelling and Control of the Motion of a Disk Rolling on a Spherical Dome |
| Z. Yuan, L. Huang and Y. Chen | 941 Convergence and Periodicity of Solutions for a Discrete-Time Network Model of Two Neurons |
| M. Fan and K. Wang | 951 Periodic Solutions of a Discrete Time Nonautonomous Ratio-Dependent Predator-Prey System |
| G. Gambolati, P. Teatini and M. Gonella | 963 GIS Simulations of the Inundation Risk in the Coastal Lowlands of the Northern Adriatic Sea |
| F. P. Kozusko | 973 The Effects of Body Composition on Setpoint Based Weight Loss |
| X. Li and J. Jiang | 983 Oscillation of Second-Order Linear Difference Equations |

| | |
|---|--|
| L. R. Castro, O. E. Agamennoni and C. E. D'Attellis | 991 Rational Wavelets in Wiener-Like Modeling |
| H. T. Banks and L. K. Potter | 1007 Model Predictions and Comparisons for Three Toxicokinetic Models for the Systemic Transport of Trichloroethylene |
| K. T. Andrews and M. Shillor | 1033 Vibrations of a Beam with a Damping Tip Body |
| A. Giloni and M. Padberg | 1043 Least Trimmed Squares Regression, Least Median Squares Regression , and Mathematical Programming |
| J. Camacho, J. C. Cortés, E. Navarro and A. E. Posso | 1061 Chebyshev Rational Matrix Approximation with <i>A Priori</i> Error Bounds for Linear and Riccati Matrix Equations |
| B. Apostolou and J. M. Hassell | 1077 Note on Consistency Ratio: A Reply |
| P. Chu and J. K.-H. Liu | 1081 Note on Consistency Ratio |
| J. A. Adam | 1085 The Effect of Surface Curvature on Wound Healing in Bone: II. The Critical Size Defect. |
| C. Liu and T. R. Marchant | 1095 The Occurrence of Limit-Cycles During Feedback Control of Microwave Heating |
| M. Asadzadeh | 1119 The Fokker-Planck Operator as an Asymptotic Limit in Anisotropic Media |
| W. F. D. Theron | 1135 The Dynamics of an Elastic Hopping Hoop |
| L. Egghe | 1149 Construction of Concentration Measures for General Lorenz Curves Using Riemann-Stieltjes Integrals |

NUMBER 11/12

| | |
|--|--|
| E. Allen, J. Burns, D. Gilliam, J. Hill and V. Shubov | 1165 The Impact of Finite Precision Arithmetic and Sensitivity on the Numerical Solution of Partial Differential Equations |
| J. D. Logan and W. Wolensky | 1197 Particle Accretion and Release in Flows of Suspensions |
| Y. Wang, K. Zhang and P. Shen | 1209 A New Type of Condensation Curvilinear Path Algorithm for Unconstrained Generalized Geometric Programming |
| G. Ökten | 1221 Random Sampling from Low-Discrepancy Sequences: Applications to Option Pricing |
| J. Li and Z. Ma | 1235 Qualitative Analyses of SIS Epidemic Model with Vaccination and Varying Total Population Size |
| K.-H. Kwek and W. Zhang | 1245 Exponential Dichotomies and Fredholm Operator for Parabolic Equations |

| | |
|---|---|
| Z. Nenadic, C. H. Anderson and B. Ghosh | 1261 Control of Arm Movement Using Population of Neurons |
| H.-O. Kreiss and J. Yström | 1271 Parabolic Problems Which are Ill-Posed in the Zero Dissipation Limit |
| P. S. Crooke, J. R. Hotchkiss and J. J. Marini | 1297 Linear and Nonlinear Mathematical Models for Noninvasive Ventilation |
| J. Buchanan, R. Gilbert, A. Wirgin and Y. Xu | 1315 Depth Sounding: An Illustration of Some of the Pitfalls of Inverse Scattering Problems |
| J. A. Sherwin and A. Lakhtakia | 1355 Errata To: "Nominal Model for Structure-Property Relations of Chiral Dielectric Sculptured Thin Films" |

NUMBER 13

| | |
|---|--|
| A. Gorban' and V. Silantyev | 1365 Riabouchinsky Flow with Partially Penetrable Obstacle |
| A. Gorban', M. Braverman and V. Silantyev | 1371 Modified Kirchoff Flow with a Partially Penetrable Obstacle and Its Application to the Efficiency of Free Flow Turbines |
| A. Morro | 1377 Split Fields and Direction of Propagation for the Solution to First-Order Systems of Equations |
| A. S. Belenky and I. Belenkii | 1391 Optimization of Planning an Advertising Campaign of Goods and Services |
| A. S. Belenky | 1405 Analyzing the Potential of a Firm: An Operations Research Approach |
| R. P. Gilbert and M. Fang | 1425 Nonlinear Systems Arising From Nonisothermal, Non-Newtonian Hele-Shaw Flows in the Presence of Body Forces and Sources |
| W. J. Layton | 1445 Energy Dissipation Bounds for Shear Flows for a Model in Large Eddy Simulation |
| Y.-K. Lin | 1453 An Algorithm to Generate All Spanning Trees With Flow |
| J. A. Wright, J. Smith, S. W. Gundry and C. A. Glasbey | 1459 A Spatial Rainfall Simulator for Crop Production Modeling in Southern Africa |
| F. A. Davidson and J. Liu | 1467 Global Stability of the Attracting Set of an Enzyme-Catalysed Reaction System |
| L. M. Meaux, J. W. Seaman, Jr. and D. M. Young | 1483 Statistical Inference with Partial Prior Information Based on a Gauss-Type Inequality |

